

What is claimed is:

1. A sampler for collecting interstitial fluid from a skin layer, said sampler comprising:

5 a sampling needle having an axis and a distal end;

a first pressure surface at least partially surrounding said needle in spaced relation thereto;

10 said needle and said first pressure surface movable relative to one another along a path of travel generally parallel to said axis with said needle and said first pressure surface having an extended position and a retracted position;

15 said extended position characterized by said distal end of said needle extending beyond said first pressure surface;

said retracted position characterized by said distal end of said needle recessed behind said first pressure surface;

20 first biasing means for biasing said needle and said first pressure surface to said retracted position.

2. A sampler according to claim 1 further comprising a second pressure surface at least partially surrounding said  
25 needle and movable therewith, said second pressure surface axially spaced from said distal end of said needle by a distance approximating a desired penetration of said needle into said skin layer.

30 3. A sampler according to claim 2 comprising second biasing means for urging said needle and said second pressure surface in a direction outwardly of said first pressure surface.

4. A sampler according to claim 2 wherein said second pressure surface and said first pressure surface define a substantially continuous surface when said second pressure surface and said first pressure surface are in generally  
5 planar alignment.

5. A sampler according to claim 1 wherein said first biasing means is selected for said first pressure surface to be urged against said skin layer with a force sufficient  
10 to define a pressurized zone of interstitial fluid opposing said needle prior to penetration of said needle into said skin layer.

6. A sampler according to claim 2 wherein said second  
15 pressure surface is concave.

7. A sampler according to claim 1 wherein said first pressure surface is a distal end of a ring surrounding said needle in spaced relation thereto.

20 8. A sampler according to claim 7 further comprising a piston surrounding said needle and movable therewith, said piston axially spaced from said distal end of said needle by a distance approximating a desired penetration of said  
25 needle into said skin layer.

9. A sampler according to claim 8 wherein said piston and said ring are in close sliding tolerance.

30 10. A sampler according to claim 9 comprising second biasing means for urging said needle and said piston in a direction outwardly of said ring.